

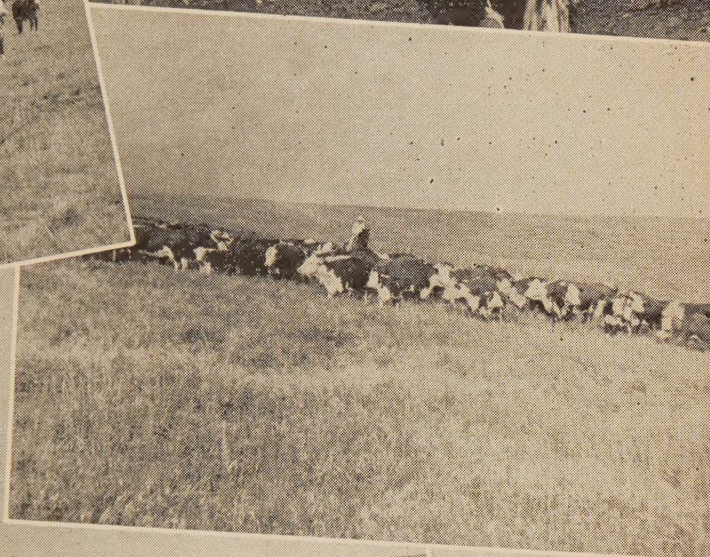
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OKLAHOMA AGRICULTURAL EXPERIMENT STATION

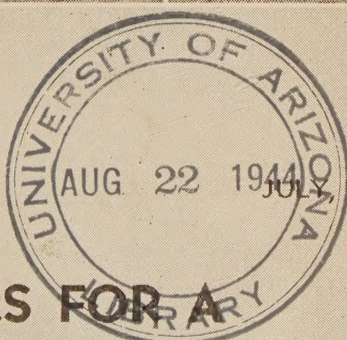
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CROP CALENDARS FOR A YEAR-ROUND PASTURE PROGRAM

by
Hi W. Staten

C O N T E N T S

Section I:

Western Oklahoma	6
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Section II:

Central Oklahoma	9
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Section III:

Eastern Oklahoma	12
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Pasture Management	15
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CROP CALENDARS FOR A YEAR-ROUND PASTURE PROGRAM

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Green pastures are the most economical feed for livestock. A year-round pasture program which provides livestock with a maximum amount of nutritious and palatable forage will do much toward reducing feeding costs.

The native pasture lands of Oklahoma are often thought of as having low productivity. This is because the pastures, as a general rule, are located on the poorest land. Where equally as good land is used for pasture as for other crops, the net income is often as much or more than from cultivated crops. A cost study made in Kansas shows that fertilized tame pasture mixture produced digestible nutrients at the low cost of 10.4 cents per 100 pounds (Table I). This included use of land, seeding, fertilization, preparation of seedbed, and fencing.

Native pastures in Oklahoma do not provide green grazing more than five or six months of each year. Livestock require a considerable amount of dry feed unless additional temporary or supplementary green pasture is provided. In most sections of Oklahoma it is possible to plan a pasture program or schedule whereby livestock can have green pastures the year around. Such a schedule requires planting

TABLE I.—Cost of Livestock Nutrients from Pasture and Other Crops.

Crop	Yield per acre	Cost of 100 lb. of digestible nutrients
Tame pasture mixture*	2 tons	10.4 cents
Alfalfa	2½ tons	25.8 "
Barley	20 bu.	51.8 "
Corn	20 bu.	64.3 "
Oats	23 bu.	76.3 "

Source: **Management of Kansas Permanent Pastures.** Kansas Agri. Exp. Sta. Bul. No. 272 (1935).

* Four-year average from a tame pasture mixture sown and fertilized according to the recommendations of the Kansas station. Included in this cost were use of the land, seeding, fertilizer, preparation of the seedbed, and fencing so the area could be used for rotation grazing.

grasses and legumes to supplement the native or permanent pastures crops.

The pasture calendars and explanations on the succeeding pages give suggestions for developing a pasture program which will provide maximum grazing throughout the year. No one farm will use all the crops listed, but the calendars picture the grazing season of each crop year so that any farmer may select the combinations which most nearly meet his conditions and needs. When the crops and combinations are selected for a particular farm, a similar calendar can be made for the individual's use.

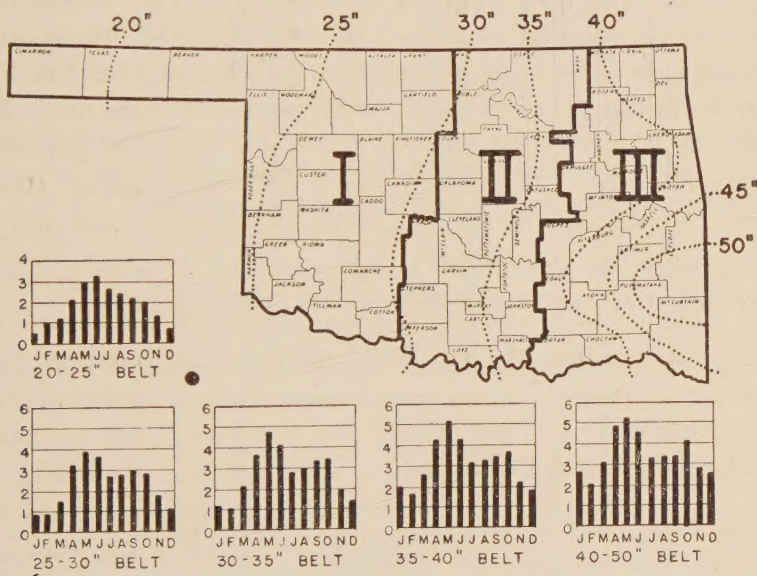
In preparing the calendars, the state was divided into three sections (See map, page 6). Section I lies west of the 30-inch rainfall belt; Section II lies between the 30 and 37-inch rainfall belt; and Section III lies east of the 37-inch rainfall belt. It must be remembered that these divisions are man-made and are not exact. Many of the common crops will move from one section to the other. However, in general, the natural rainfall belts fairly well define the regions of the state.

The shaded area for each crop indicates the season of the year during which it will provide green pasture. The height (thickness) of the shaded area indicates roughly the amount of grazing, although this will vary with seasonal conditions and time of planting. Absence of a shaded area, or only a narrow area, indicates seasons when pastures from that crop is insufficient. The object of a planned pasture program is to have a succession of crops which provides sufficient green pasture the entire year, or as nearly the year around as possible. Every farmer interested in a systematic pasture program should build a calendar for his own farm.

Section I

WESTERN OKLAHOMA

In Western Oklahoma, the low annual precipitation limits the number of crops which can be grown. The native grasses, if properly managed, provide good pasture in the summer season and for several months during the winter. Most of these grasses are highly palatable and make nutritious dry forage during the winter season. The native grasses plus wheat or other winter small grains ordinarily make pastures for nine to ten months of each year. There will be some gaps during the year, particularly in early spring and fall, which will need supplementary crops. Sudan grass and



Pasture Sections and Rainfall in Oklahoma

Sections I, II, and III on the above map are the approximate areas where the three corresponding pasture calendars apply. The change from one area to the other is, of course, gradual. Dotted lines show the average annual precipitation in inches. The small graphs at the bottom show the way in which rainfall is distributed through the year in the different rainfall belts.

second-year sweet clover will help to fill out the year-round program.

General Explanation of Calendar Crops

● Native grass pastures consist mainly of buffalo, blue grama, and side oats grama. Several other native grasses, particularly sandhill bluestem, little bluestem, sand lovegrass, sand dropseed and others, have a place in the native grass composition. These species provide excellent grazing during the summer and winter season if enough grass is available to allow alternate summer and winter grazing.

● The winter small grain, consisting chiefly of wheat, barley and rye, can often be pastured by November 1 to 15. If these small grains are planted for pasture, the grazing should start as early in the fall as possible. This will necessitate early seeding, however. Rye should be planted on sandy loam soils where wheat is not used in the crop rotation system. Rye and vetch are fine companion crops and make a good combination for sandy soils. Balbo and Abruzzi varieties of rye are the best for pasture.

● Bermuda grass may be grown in some parts of this section, particularly the eastern and southern parts.

● Sudan grass makes an excellent midsummer and early fall pasture. In some areas where Johnson grass is established it should be utilized for pasture. It can be pastured earlier than Sudan.

● First and second-year sweet clover is an excellent legume pasture and can be utilized in early spring or midsummer. Alfalfa is an excellent late fall and winter pasture crop.

● Some of the annual legumes, such as cowpeas and mung beans, are often used for sheep and hogs and generally are recognized as good temporary pasture crops.

Section II

CENTRAL OKLAHOMA

The rainfall for the central Oklahoma area (See map, page 6) varies from 30 inches annually on the west side to 37 inches on the east. This annual precipitation and wide variation in soil types, plus a longer growing season, allow a much wider latitude in crop selection. More supplementary pasture crops are adapted to this section than to the western section.

The native pastures are largely mixed woodlands and prairies, and are generally crowded to the rough and rolling areas. These pastures ordinarily are small and have been badly overgrazed. The big pasture section in the Osage and the Arbuckle Mountains are exceptions.

The soils of this section are low in fertility and very generally need mineral fertilizers, particularly lime and phosphate. Erosion has caused considerable damage to most of the native pastures. It is very necessary that the native pastures be supplemented with tame grasses and clovers if a year-round pasture schedule is developed.

General Explanation of Calendar Crops

● Native grasses consist mainly of little bluestem, big bluestem, buffalo grass, side-oats, blue and hairy grama, Indian, and switch grasses. Several less important species are also usually present, particularly the dropseeds, love-grass or stinkgrass, wild ryes, pitted joint or rat-tail, paspalums, and others. The reserve winter pastures are not as nutritious as those of the western section because of lower soil fertility, more rainfall, and more soft-stemmed grass species.

● The native grass pastures can be improved and grazed longer by adding legumes and ryegrasses. The legumes which should be given consideration are lespedezas, hop and bur clover, and black medic.

Not all of the crops mentioned in the calendar for the

PASTURE CROPS	TIME OF YEAR WHEN PASTURES ARE READY TO GRAZE											
	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
SUMMER NATIVE PASTURE			•	•								
WINTER NATIVE PASTURE												
WINTER SMALL GRAINS				*				•		•		
RYEGRASS								•		•		
RYEGRASS & LESPEDEZA								•		•		
RYEGRASS & MIXED CLOVERS								•		•		
VETCH & RYE								•		•		
BERMUDA												
BERMUDA & LESPEDEZA												
BERMUDA & MIXED CLOVERS												
SMALL GRAIN & LESPEDEZA				*								
SUDAN GRASS												
JOHNSON GRASS												
FIRST-YEAR SWEET CLOVER												
SECOND-YR. SWEET CLOVER												
ALFALFA												
SUMMER LEGUMES												
LESPEDEZA												
WEeping LOVEGRASS												

* - EXTRA PASTURE IF A GRAIN CROP IS NOT TAKEN.

• - DATE OF PLANTING.

A Calendar of Pasture Crops for CENTRAL Oklahoma (Section II)

Section of state where this pasture calendar applies is shown on map, page 6. Crops shown on the calendar are discussed on pages 9-12.

central section can be grown with complete success in all parts of the section, because of the frequent summer droughts and low soil fertility levels. In choosing a crop combination, consideration should be given to soil type and fertility.

● Bermuda is an excellent grass for making new pastures in most of the central section. Overseeding Bermuda with legumes make a very nutritious pasture and also prolongs the grazing season. Korean lespedeza and hop clover are the most suitable legumes in the central and northern part. In the central and southern section, Kobe lespedeza, big or little hop clover, black medic, and bur clover may be used. If the soil fertility is low, an application of mineral fertilizers is essential.

● The winter small grains—wheat, oats, rye, and barley; and also ryegrass—are very essential supplementary winter pasture crops. Balbo or Abruzzi rye varieties are most excellent on sandy loam soils. For early fall pastures these crops should be planted early in September on firm, well prepared seedbeds.

● Winter small grain, particularly winter barley or oats, overseeded in the spring with lespedeza makes an excellent winter and summer pasture in most parts of the central section.

● Annual lespedezas (Korean and Kobe) are fine summer pasture crops when seeded alone on sandy loam soils, but either is much more profitable when seeded as a companion crop with oats or barley.

● Hairy vetch and rye or ryegrass makes an excellent winter and spring pasture. The vetch is very useful in soil improvement.

● Sweet clover should not be forgotten in this section. It makes a fine pasture during the summer of the second year. Lime and phosphorous should be applied before seeding sweet clover if the soil is not already well supplied with these minerals.

● Many farmers utilize alfalfa for a pasture crop. Generally it is grazed lightly in late fall and winter. A much better pasture is possible if a good winter grass can be sown with the alfalfa. Smooth bromegrass has some possibilities in the central and northern part of this section, but should be planted only on fertile soils.

● Sudan and Johnson grass are fine summer pasture crops, particularly during the hot dry season and fall. Johnson grass can be pastured fairly early in the spring, but will not withstand continuous heavy grazing for a long period of time. It is also a noxious weed in cultivated crops.

Section III

EASTERN OKLAHOMA

Section III includes that portion of the state east of the 37-inch rainfall line. (See map page 6). It also includes the eastern part of the central cross timbers, the eastern prairies of northeastern Oklahoma, and the northern and southern Ozarks.

The soils of this section are generally low in fertility and mineral fertilizer is very essential in developing an all-year-round pasture program.

The higher annual precipitation and the less frequent drought hazard make it possible for farmers in eastern Oklahoma to grow more kinds of pasture crops than in any other section of the state. This condition makes it more nearly possible to build a year-round pasture program.

The high rainfall which occurs in this section makes more weeds to compete with the grasses, thus requiring more attention to weed control.

General Explanation of Calendar Crops

● The native grass pastures consist mainly of soft-stemmed grasses, principally the big and little bluestems. There is an abundance of switch grass in some areas. Less important species include Indian, pitted-joint or rat-tail, wild

PASTURE CROPS	TIME OF YEAR WHEN PASTURES ARE READY TO GRAZE											
	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
SUMMER NATIVE PASTURE			•	•								
WINTER NATIVE PASTURE												
NATIVE PLUS LEGUMES												
NATIVE, RYEGRASS, & LEGUME				•								
BERMUDA												
BERMUDA & MIXED CLOVERS												
BERMUDA & LESPEDEZA												
WINTER SMALL GRAIN				*				•	•			
RYEGRASS												
RYEGRASS & LEGUMES												
SMALL GRAINS & LEGUMES												
LESPEDEZA				•								
VETCH & RYE				•				•				
FIRST-YEAR SWEET CLOVER				•					← OR →			
SECOND-YR. SWEET CLOVER												
A-LFALFA												
SUDAN GRASS												
JOHNSON GRASS												
TAME GRASSES & LEGUMES												
W. LOVEGRASS & LEGUMES				•				•				
KUDZU				•								
* - EXTRA PASTURE IF A GRAIN CROP IS NOT TAKEN.												
• - - - - • DATE OF PLANTING.												

A Calendar of Pasture Crops for EASTERN Oklahoma (Section III)

The section of the state where this pasture calendar applies is shown on map, page 6. Crops shown on the calendar are discussed on pages 12-15.

ryes, windmill grass, wild paspalums, and many others. The reserve winter native pastures are more woody and less nutritious than in the sections farther west, but are important in keeping down feed costs.

- The native pastures, both winter and summer, can be improved in most of this section by adding legumes, rye-grass, and mineral fertilizers.

- Bermuda is the most important tame grass except in the claypan soil areas of the northern part of the section. Except in those areas, it should be considered as the base grass for all tame pastures. Bermuda alone, however, is not complete unless pasture legumes are added. The annual lespedezas, Korean and Kobe, are excellent summer pasture legumes. Korean is adapted to the central and northern parts of the section, and Kobe in the southern part. Big and little hop clover, bur clover, and black medic are fine winter legumes and should be included in the calendar, particularly in a Bermuda and lespedeza pasture. Bur clover and black medic are better adapted to the central and southern parts of this section. Common white dutch clover may be used if minerals are available and when the surface soil is well supplied with organic matter.

- Winter small grains, particularly oats, rye, barley and soft wheat, make excellent temporary pasture crops. Balbo and Abruzzi rye varieties are best. Barley, oats or ryegrass seeded early in the fall and overseeded the following spring with lespedeza make a fine winter, spring and summer pasture combination.

- A vetch and rye combination or vetch and ryegrass do well in this section and merit consideration for good pasture and soil building. Many of the soils will need a phosphate fertilizer in order for vetch to grow.

- Sweet clover does well in this section if the soils have sufficient lime and available phosphorous. A combination of sweet clover and oats or barley is very practical.

- Alfalfa on the better soils may be used for pasture, par-

ticularly in the fall and winter. Livestock should be carefully watched for bloating damage when grazing starts.

- Any soil on which alfalfa is to be planted should be first tested for lime and phosphorous.

- Sudan grass is adapted in all parts of the section and is a fine pasture crop through the summer and early fall. Johnson grass, where it is established, should be utilized for pasture or hay. It is a thrifty perennial and affords heavy grazing for several months.

- Several winter tame pasture crops, not heretofore mentioned, can be grown in this section. Some of the species commonly grown in the northern part of the section are Kentucky bluegrass, alsike clover, redtop, perennial rye, orchard grass, timothy, and meadow fescue. Any tame grass mixture should include two or three of the adapted pasture legumes. In the southern part, dallis, carpet, redtop, and tall fescue, plus pasture legumes, are worthy of consideration.

- Kudzu, a thrifty growing perennial legume crop, is worthy of a recommendation in southeastern Oklahoma. It makes a large amount of palatable forage for hay or pasture through the midsummer season. It also is an excellent soil-building crop.

- Weeping lovegrass plus Korean lespedeza has possibilities in eastern Oklahoma. The lovegrass provides early grazing in the spring and through to midwinter. The lespedeza can be grazed during the summer and early fall.

PASTURE MANAGEMENT

A good pasture is the cheapest feed one can give to livestock. The cost of producing milk or meat can be reduced greatly by providing green grasses and legumes through the greater part of the year; but a pasture schedule involving rotation pastures, native and—or tame grasses, and legumes, requires careful planning and management.

Pastures should be made to use, and maximum use

should be the aim of a pasture system. However, green and nutritious forage should be kept ahead of the livestock at all times.

The fact that there is plenty of forage does not necessarily mean that livestock are well fed. Nutritious and bone building forage cannot be grown on soils which are low in the essential minerals. Fertilizers will provide these minerals, and a soil test showing which are needed can be made by your county agent.

A weedy pasture robs grasses and legumes of soil moisture, sunlight and plant food. Weeds do not allow the livestock to make maximum utilization of the desirable forage. Therefore weeds should be controlled by mowing the pasture at the proper time. A leaflet telling when and how to mow is available from county agents.

Pastures will not meet all the feed requirements through the entire season and during hazard years. There will be gaps in the pasture schedule when it will be necessary to provide hay and grain for the purpose of keeping up the milk flow or putting on gains the year around.

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